

CLAIMS

1. An apparatus for making a fracture cut between the cup and the safety ring in plastic caps, comprising rotary means (11) provided with at least one mandrel (12) that can be arranged inside said cup (3) and is adapted to
5 produce the rolling, about its own axis of symmetry (S), of the side wall (13) of said cup (3) along the cutting edge (14) of a blade (15) for making said cut, said blade (15) being associated with an inlet path portion (16) adapted to axially offset said cup (3) with respect to the rotation axis (R) of said mandrel (12) by clamping said side wall (13) against said mandrel (12),
10 characterized in that it comprises means (17) for recentering said cup (3) with respect to said rotation axis (R).

2. The apparatus according to claim 1, characterized in that it comprises a carousel (10) that has a vertical axis and is provided with multiple peripheral seats (28) for conveying said cups (3) between input and output
15 conveyance means, and a footing (6) that extends upward with a frame (7) that surmounts said carousel (10), said rotary means (11) being actuated by a respective motor (53) by way of belt drive elements (54).

3. The apparatus according to claims 1 and 2, characterized in that said recentering means (17) comprise multiple pushers (68), which act on said side wall (13) of each one of said cups (3) in a direction that is substantially radial and centrifugal with respect to said carousel (10), and are actuated by respective cam means (69).

4. The apparatus according to one or more of the preceding claims, characterized in that each one of said pushers (68) has a substantially quadrangular shape, in which the surface (70) for contact with said cups (3) is convex, said pusher (68) being connected to an arm (71) that extends with a stem (72) that can slide substantially radially with respect to said carousel (10) within a respective guiding block (73), said stem (72) being connected at its free end to a respective wheel (74), said cam means (69) comprising a
30 track (75) that is closed in a loop and is provided on a bush (76) that is

coaxial to said carousel (10) and is monolithic with said footing (6), said track being suitable for the rolling of said wheel (74) and having such a shape as to produce the radial translational motion of said pusher (68).

5. The apparatus according to one or more of the preceding claims,
characterized in that said belt drive elements (54) comprise a sleeve (5),
which is supported so that it can rotate on a column (40) that is coaxial to
said carousel (10), is rigidly coupled to said footing (6), is actuated at the
respective upper end (56) by said motor (53), and on which first and second
coaxial toothed pulleys (58, 59) are keyed at the respective lower end (57),
10 first and second toothed belts (60, 61) being wound respectively around said
pulleys, said belts being closed in a loop and being suitable for the rotary
actuation of a plurality of said mandrels (12) that have a vertical axis.

6. The apparatus according to one or more of the preceding claims,
characterized in that said motor (53) is coaxially connected to said upper
15 end (56) of said sleeve (55).

7. The apparatus according to one or more of the preceding claims,
characterized in that a third toothed pulley (64) is keyed at said upper end
(56) of said sleeve (55), a respective third toothed belt (65) being wound
around said third pulley, said third belt being closed in a loop and suitable
20 for connection to said motor (53), whose axis is parallel to the axis of said
sleeve (55).

8. The apparatus according to one or more of the preceding claims,
characterized in that said cutting edge (14) of said blade (15) has a profile
that is substantially shaped like a circular arc that is concentric with respect
25 to the path (T) of the rotation of said cups (3) conveyed by said carousel
(10), said inlet portion (16) being formed by a plate (80) and a
complementary plate (81) for supporting said blade (15).